

Popsicle Stick Catapults

Materials Needed:

Popsicle sticks
Rubber bands
Plastic spoons
Cotton balls

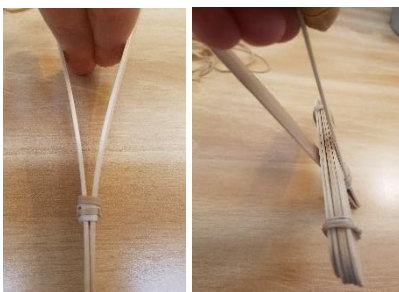
Directions:



Take 2 craft sticks and one rubber band. Stack sticks on top of each other. Wrap a rubber band around the bottom of one side.



Take 5 craft sticks and two rubber bands. Stack 5 sticks on top of each other. Wrap one rubber band around the top and one rubber band around the bottom of the stack.



Take the set of 2 craft sticks and gently pull them apart from the top. Place the set of 5 craft sticks in between.



Take one more rubber band and criss-cross the rubber band around the joint you just made.

***** PRO TIP: Ask for help! This is the trickiest part. *****



Add one more rubber band to the top craft stick. Slide a spoon under the rubber band, but on top of the craft stick. Slide it down as far as you can.



Then, load one cotton ball to the spoon, press down lightly, aim and fire! Time to test and try new things!

Consider these tests and trials:

- Different weights of projectiles!
- How far can you get a projectile?
- Getting your projectile into a cup or bowl!
- Adding more (or less) craft sticks to the set of 5...how does that change projectiles?
- Set up a cup pyramid or tower of cups. Can you knock them over?
- Create your own challenge!

Discussion:

A catapult is a simple machine that has been around for ages. Catapults move an object from point A to point B. This is a great simple physics activity for kids of multiple ages. Let's start with energy including elastic potential energy. You can also learn about projectile motion.

Newton's 3 Laws of Motion:

- An object at rest stays at rest until a force is applied
- An object will stay in motion until something creates an imbalance in the motion
- Every action causes a reaction

When you pull down the lever arm, all that potential energy gets stored up! Release it and that potential energy gradually changes to kinetic energy. Gravity also does its part as it pulls the object back to the ground.

When you release the stick all the potential energy is released into energy in motion producing the projectile motion.